

WHAT IS CLAIMED IS:

1. A method of determining the effect of an agent on a diploid cell and/or on an expression or activity of a polypeptide expressed within the diploid cell, the method comprising:
 - (a) administering an exogenous RNA molecule encoding the polypeptide into the diploid cell;
 - (b) contacting the diploid cell with the agent; and
 - (c) monitoring a phenotype of the diploid cell and/or the expression or activity of the polypeptide within the diploid cell, thereby determining the effect of the agent on the diploid cell and/or on the expression or activity of the polypeptide expressed within the diploid cell.
2. The method of claim 1, wherein the diploid cell is a differentiated cell.
3. The method of claim 2, wherein the diploid cell is a neuron.
4. The method of claim 1, wherein said administering is effected by microinjection.
5. The method of claim 1, wherein said exogenous RNA molecule is a capped messenger RNA.
6. The method of claim 1, wherein the polypeptide is conjugated to a detectable label selected from the group consisting of green fluorescent protein (GFP), derivatives of GFP, luciferase, β -glucuronidase, β -galactosidase, and chloramphenicol acetyltransferase.
7. The method of claim 1, wherein said monitoring is effected by:
 - (i) fluorescent microscopy;
 - (ii) protein expression assay; and/or
 - (iii) assaying enzymatic activity.

8. The method of claim 1, wherein said exogenous RNA molecule encoding the polypeptide is a chimeric RNA molecule including a first sequence region encoding the polypeptide and a second sequence region encoding a reporter molecule, wherein said first and said second sequence regions are linked via an internal ribosome entry site sequence.

9. The method of claim 1, wherein said exogenous RNA molecule encoding the polypeptide is a chimeric RNA molecule including a first sequence region encoding the polypeptide and a second sequence region encoding a reporter molecule, wherein said first and said second sequence regions are in-frame linked.

10. A neuronal cell comprising a chimeric RNA molecule including a first sequence region encoding a polypeptide of interest and a second sequence region encoding a reporter molecule, wherein said first and said second sequence regions are linked via an internal ribosome entry site sequence.